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# Pants Aid

Thomas Mendoza  
*Parkland College*

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## **Pants Aid:**

### **An Adaptive Device for Individuals with Difficulty in Lower Body Dressing**

Early in my fieldwork experience on the Acute Rehab unit at Advocate BroMenn Medical Center, I noticed multiple patients who had difficulty donning clothing for their lower body. Typically, these individuals had reduced range of motion (ROM) at the trunk and hips, preventing them from being able to reach down to don pants and undergarments. To help them succeed, therapists would provide them with a device called a reacher, to extend their reach and pull up their clothes. It frequently made a formerly impossible task possible, but many patients still had a great deal of difficulty maneuvering their feet through the pant legs because when held up by the reacher, the pants collapse in on themselves, resulting in a limp, narrow, and difficult to access pant leg. This was particularly difficult for patients with lower extremity weakness and it often took a great deal of time.

It occurred to me that while the reacher is a very versatile device that enables patients to perform dressing tasks they might otherwise not be able to, it tends to often require a considerable amount of time to perform the task independently. To remedy this, I constructed a simple device that can be used in tandem with the reacher. Consisting of a simple clip attached to a cord, the device is lightweight and easy to use. The purpose is to attach the clip to one side of the pants while using the reacher to hold open the other side. This opens both pant legs, allowing the patient to slide both legs in at once, while giving them a much bigger target, as well as an additional hand to manipulate them as needed.

My intention was to perform research during my fieldwork, having my patients use the Pants Aid and provide comparative ratings for both the reacher and reacher with Pants Aid, and a brief interview about their experience. Unfortunately, most my patients did not require additional

assistance with lower body dressing. The one patient who did make use of it, was a 97 year-old male with a diagnosis of a stroke and right hemiplegia. His unilateral upper and lower extremity weakness in addition swelling in his feet made it very difficult for him dress his lower body. When prompted to use the Pants Aid with his reacher, he reported that he was able to don his clothes “twice as fast”.

Unable to get significant data during my fieldwork, I simulated multiple diagnoses that reduce trunk ROM with peers from the occupational therapy assistant program. Diagnoses were: Obesity with lower extremity weakness, total hip replacement, lumbar spine surgery with lower extremity weakness, and cervical spine surgery. I had each individual attempt to dress their lower body using the reacher by itself, then again using the reacher with the Pants Aid. I would time each trial and afterwards they would rate the experience of a scale of 1 to 5; 1 being most difficult and 5 being easiest. Out of 7 trials, 5 were timed. The average time for using the reacher by itself was 53.6 seconds, with an average rating of 1.7. The average time for using the reacher in tandem with the Pants Aid was 14 seconds with an average rating of 4.7. Comments regarding the device reported that the Pants Aid was easier to use than the reacher by itself because it opened the gap in the pants wider to allow easier access while also making them easier to pull up.

The conclusion I have come to is that this device could provide a considerable benefit to those who have difficulty dressing their lower bodies due to reduced trunk and hip ROM. It could reduce the time spent dressing during occupational therapy interventions, allowing for other activities. Not only that, but it could substantially reduce time spent dressing while simultaneously increasing levels of independence for any individual with these problems, be it in a hospital setting or at home.

Below: The Pants Aid





Above: Hole created by reacher alone.

Below: Hole created by reacher and Pants Aid.





Below: A Sequence of a stroke patient using Pants Aid

